Trees.

Lowering a Heavy Limb On a Line Job—Photo by T. D. Neil

A Merry Christmas and a Happy New Year

We Can Save Our Elm Trees — ***R. P. Marshall***

Gypsy Moth Control With DDT — ***J. M. Corliss***

Nov.-Dec., 1947 *The Journal of American Arboriculture* Vol. 8—No. 1

The new Mall Power Saws are now available for clearing land, felling, limbing and bucking pulpwood or big timber up to 12 feet in diameter. They are faster . . . lighter in weight . . . and lower in price. Sturdy Gasoline Engine is interchangeable on all three models.

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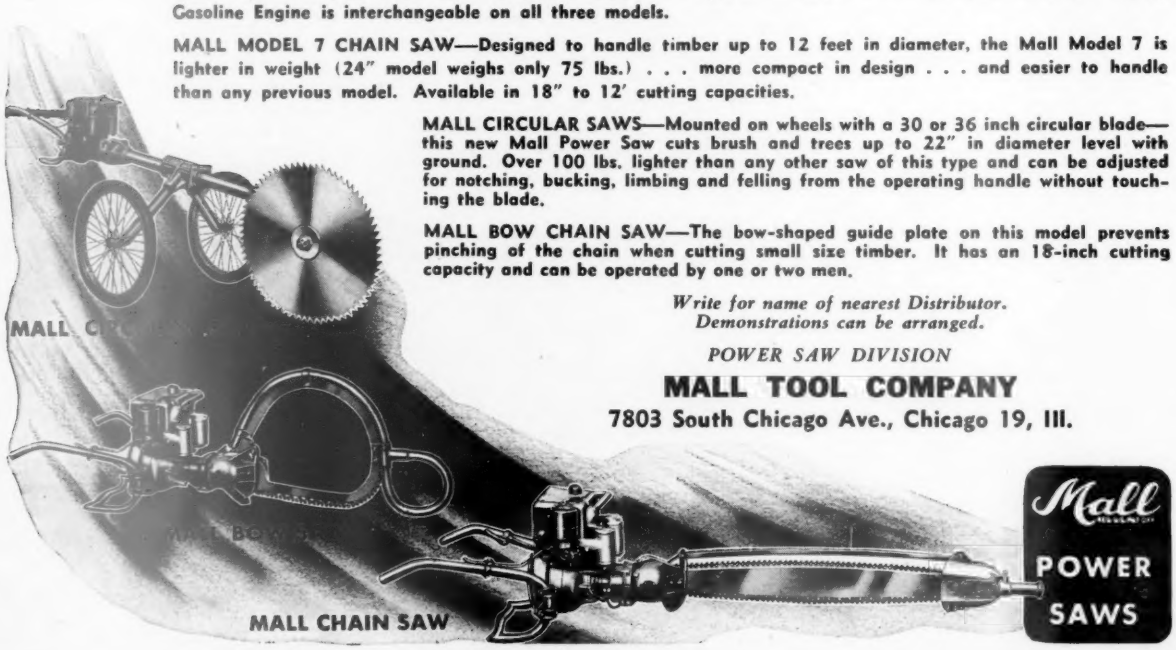

MALL CIRCULAR SAWS—Mounted on wheels with a 30 or 36 inch circular blade—this new Mall Power Saw cuts brush and trees up to 22" in diameter level with ground. Over 100 lbs. lighter than any other saw of this type and can be adjusted for notching, bucking, limbing and felling from the operating handle without touching the blade.

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TitEES Magazine is a bi-monthly Journal published at Cleveland, Ohio, by Edward H. Scanlon, and is devoted to the furtherance of the technical and business administration of Trees (Street and Ornamental); Parks (Municipal and National); and Forests (State, National and Private), in the U. S. Scanlon Publishing Co., P. O. Box 5607, Cleveland, Ohio. Subscription by mail $2 per year; outside United States, $2.50. Advertising rates upon inquiry. Closing date for advertising copy—15th of month preceding date of issue. Unsolicited manuscripts must be accompanied by return postage.

ALONG THE WAY With . . . EDW. SCANLON

• Young HOLLIS, JR., is starting where papa Lime Howe began his forestry work quite some few years ago at NEW YORK STATE COLLEGE OF FORESTRY. Lime adds that "STRANGELY ENOUGH HE LIKES IT TOO!"

* * * *

• *We're very sorry to hear of the tragic death of TONY SIMEONE. Tony was NORM ARMSTRONG'S right hand man at White Plains, N. Y. He was walking along a highway when a truck swerved toward him, the truck bed struck him killing him instantly. HE WILL BE MISSED by many friends.*

* * * *

• Shade Tree Meetings. NEW JERSEY FEDERATION OF SHADE TREE COMMISSIONS, Newark, Dec. 3 and 4. SOUTHERN CHAPTER, N. S. T. C. and NATIONAL ARBORIST ASS'N, New Orleans, late Jan. or Feb., 1948. MIDWESTERN CHAPTER, N. S. T. C., La Salle Hotel, Chicago, Feb. 19-20, 1948. MICHIGAN FORESTRY AND PARK ASS'N, Lansing, Feb. 5, 1948. OHIO SHORT COURSE, Columbus, Jan. 19-21, 1948.

* * * *

• *In response to LAST ISSUE'S note on W. H. ZERBY'S desire to go SOUTH FOR THE WINTER, we have a suggestion from FRED STRUFE, WILSON TREE COMPANY, Inc., Shelby, N. C., to wit, and as follows: THEY ARE INTERESTED in an arrangement with any arborist who would like TO SPEND THE WINTER in North Carolina (NORTH OF SOUTH CAROLINA, he hastens to add)—or on A STEADY BASIS—but—such arrangement WOULD NEED the consent of PRESENT EMPLOYER.—Go to it skinners.*

* * * *

• ARCHIE PRICE of GLENVIEW, ILL., comes up with the suggestion that the great midwest BE REPRESENTED on the EDITORIAL BOARD OF "TREES." You're very right Arch and WE'LL DO OUR BEST to persuade some GOOD SOUL to lend his prestige to THIS FINE GROUP. Thanks.

* * * *

• *TIM JANOSKO is putting that big MASS OF MUSCLE to work in the FORMATION OF AN Eastern chapter of the NATIONAL SHADE TREE CONFERENCE. ED CONNELL is lending a hand. These two SWEDES OUGHT to be able to put it over.*

* * * *

• Thirty-five members of the FAIRFIELD COUNTY TREE PROTECTIVE ASS'N met at STAMFORD, CONN., Sept. 23 for a bull session; also a demonstration of HOMELITES ONE MAN chain saw.—Another meeting was held AT STRATFORD, OCT. 21 with TIM JANOSKO swinging the stick. Send us dope on these MEETINGS WELL in advance, character!

* * * *

• *LARRY WACHTEL who is MAJOR DOMO for the 24TH NATIONAL SHADE TREE CONFERENCE (Milwaukee, 1948) says THEY HAVE the stuff there to MINIMIZE HEAT should a recurrence of the CLEVELAND THERMOMETER rhumba happen. WE'LL SEE, CHUM.*

* * * *

• Talking about THAT HEAT, we could USE A LITTLE of it now because as I assured DOC BLUME, the TEXAS SANDMAN, in a recent letter, that WHITE STUFF THAT IS FALLING around here OCCASIONALLY now ISN'T DANDRUFF from an ANGEL'S TOUPEE.

• *The announcement that COL. JOHN R. WHITE, Supt. of SEQUOIA and GENERAL GRANT NATIONAL PARKS, has retired AFTER 27 YEARS, brings back a PLEASANT MEMORY of a cold, snowy night 20 YEARS AGO IN SEQUOIA. A friend and I found our CAR FROZEN TIGHT after we had hiked thru the BIG TREES. Calling at the ranger station, COL. WHITE prepared hot tea and sandwiches WHILE WE VISITED and warmed up for several hours. He is a GRAND GENTLEMAN and as DIRECTOR NEWTON B. DRURY said, "on your retirement the Service will be the poorer when you cease to be an active part of it."*

* * * *

• Today is NOVEMBER 23—and, BELIEVE IT OR NOT, the GRASS NEEDED CUTTING and GOT IT. Also, have GERANIUMS and DELPHINIUMS IN BLOOM—no kidding.

* * * *

• *Was almost STRANDED IN CHICAGO the other day. Occasion was AN AIR TRIP to PEORIA, ILL., to talk STREET TREES to the GREATER PEORIA CIVIC ASSOCIATION. American Airlines cancelled (AS USUAL) their flight from CHI TO PEORIA—couldn't get another SKY RIDE, and NO BUSSES—finally, cute little CAPITAL AIRLINES' MISS BECKER got me a seat on the Rock Island "ROCKET."*

* * * *

• RHODY OWENS, mine host, met me at a junction 40 MILES from Peoria and we really "PAUL REVERED" over the HILLIEST, TWISTIEST road in captivity. GOT TO THE BANQUET at 8:15—only AN HOUR AND A HALF late.

* * * *

• *PHLOEM NECROSIS has TAKEN OVER in Peoria—with STREETS OF STUMPS, like in COLUMBUS, OHIO, to prove it. They need a WELL PLANNED, long range STREET TREE PROGRAM. Their street trees, THOSE REMAINING, show the signs of PAST NEGLECT and POOR SELECTION, like so MANY CITIES.*

* * * *

• With FRANK HANBURY, "JEFF" JEFFREY, RHODY OWENS and THEIR MISSESES we naturally had a TREE SESSION after the banquet. GET JEFF to tell you about his TREE MOVER sometime—ANYTIME.

* * * *

• *I also FOUND OUT how FRANK HANBURY got that LITTLE HITCH in his RIGHT leg when HE WALKS. In DRIVING OVER those bumpy roads DOWN THERE, in the back country, his FOOT KEEPS SLIPPING off the accelerator—HIS FRANTIC EFFORTS stabbing around TO RELOCATE IT have now become SECOND NATURE and so the limp.*

* * * *

• DOC (he's a full Professor now—no pun) CHADWICK brought HIS CLASS up from COLUMBUS TO GET some field work in with "PROFESSOR" IRISH. The profs ALSO TOOK the lads over to see the SPRING GRAFTED GLOBE HEADS, upright GOLDEN ELMS and other uprites, and equipment, of the Cleveland DIVISION OF SHADE TREES.

* * * *

• *ROGER SWINGLE and DICK WHITTEN, the USDA PHLOEM NECROSIS boys were in town. WE'RE HOPING that VERY SOON ROGER will have good news on AN ELM RESISTANT to both DED and PHLOEM NECROSIS.*

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Vol. 8 Bi-Monthly No. 1

Subscription Price $2.00 Per Year (Foreign $2.50) 35 Cents Per Copy Box 5607, Cleveland, Ohio

The Editors of TREES invite discussions, comments and all types of literary materials pertaining to trees and tree preservation from any person engaged either in the scientific advancement or commercial development of the field.

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• FLETCHER REYNOLDS our ZOONITHOLOGIST in Cleveland told me that a LOT OF YOU LADS said HELLO at the PARK INSTITUTE meeting—SWELL—hello, and WHY DON'T YOU WRITE. Let's keep up on that WEST COAST STUFF—trees I MEAN.

* * * *

• *There's a LOT OF INTEREST lately in STREET TREE ORDINANCES—now the next thing is a MASTER STREET TREE PLAN—adequate spacing and a MUCH WIDER, and better, SELECTION OF SPECIES.*

* * * *

• TWO CHEMICALS of fairly RECENT DISCOVERY give promise of splendid control on JAP BEETLE with "CHLORDANE," —and RED SPIDER and THRIP with "THIOPHOS 3422."

* * * *

• *So far OUR STORE OF PIX, showing "OUTSTANDING STREETS OF TREES" in America, is VERY LIMITED. We WOULD LIKE to run A SERIES of such pix in COMING ISSUES OF TREES. Aren't there SOME BEAUTIFUL or unusual STREETS OF TREES somewhere in these states.*

* * * *

• Also HERES AN INVITATION to all readers to SEND IN A PICTURE of their "FAVORITE TREE." Surely EVERYONE HAS a favorite tree—it may be a FREAK, AN EXOTIC or an OUTSTANDINGLY BEAUTIFUL FORM. This should be VERY INTERESTING. Lets HAVE SOME ACTION.

* * * *

• *Wait TILL YOU SEE a little NORWAY MAPLE we are going TO PROPAGATE for STREET PURPOSES in CLEVELAND. It's a very compact, UPRIGHT OVAL—a beautiful tree, we FOUND IT on a street in WEST CLEVELAND.*

* * * *

• Still trying to GET A LEAD on the LOCATION OF a specimen of UPRIGHT SOPHORA JAPONICA. What a STREET TREE it would be.

Nov.-Dec., 1947 **Journal of the National Arborist Association** Vol. 8. No. 1

EDWARD H. SCANLON, Editor
Box 5607, Cleveland, Ohio
Phone ORchard 0341

"No place is complete without trees. A home without trees is charmless; a road without trees is shadeless; a park without trees is purposeless; *a country without trees is hopeless*"

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Out on a Limb

"TIN" YEARS FOR "TREES"

Ten years ago, Dec., 1937, the first issue of TREES Magazine came rolling off the presses in Santa Monica, Calif. Little did we think at the time that our "tin" anniversary would be celebrated in Cleveland, Ohio—for that matter the problems involved in this modest venture were not conducive to thinking any further ahead than the next issue.

We like to think that TREES has filled in a place that was needed in the budding field of arboriculture, and it would seem reasonable to conclude, after ten years of existence in a field of business that is not easy, publishing, that we have met with some measure of success. In a comparatively small field such as this help is needed from those composing the far flung men in the field. They did help and have continued in many ways. They have made TREES possible and we are grateful.

Over these years we have had an objective, or better, a series of objectives that have steered the way for TREES. It may be that everyone will not agree with the order in which we list them, but that is not important, it is the attainment and it is not always propitious to adhere to numerical order when circumstances may alter good intentions.

First we consider the movement started by TREES several years ago, the establishment of a National Arbor Day, as a special extra "must." The effort was endorsed by the National Shade Tree Conference, the American Institute of Park Executives and the American Nurserymen's Association. The date selected is the "last Friday in April" and one state, Massachusetts, has already changed its statute to conform. Last year eighteen governors proclaimed the date. The opportunity for a concerted telling of the story of trees to the public is unlimited. This effort will continue.

The second objective is State Laws Guiding the Practice of Arboriculture. Headway has been made. Several states have laws, and in others active groups are working toward presentation of bills at the next session of their legislatures. Such laws are needed for both the protection of the public and of the arborist who is doing a good job ethically and by all recognized standard practices. There may be some dispute between partisans of one or another type of law that should be sponsored, but we believe the majority opinion should rule and will endorse such a decision.

Third, there is a crying need for an Authoritative Arboricultural Book Series. There has been much talk in recent

years in favor of establishing courses of arboriculture in some colleges. Several schools have done so, but how can they teach in a straight line and universally standard practices when no such lines have been clearly drawn. Certainly we have the material—we have the academic acumen to commence such a series, why do we procrastinate? The question of finances crops up and of course must be weighed, however, we think we see a glimmer of hope for a beginning.

Fourth: Better Understanding and Greater Cooperation Between Related Horticultural Professions. Perhaps a joint meeting in the near future of all the organizations concerned would serve to effect badly needed cooperation. The various organizations could set their annual conventions for the same dates in a centrally located city, arrange a program that would acquaint the delegates with the objectives and problems of the other. This should be worth a try.

Fifth: Organized Research in Shade Tree Problems. The insidious pressure of such tree diseases as Dutch Elm disease, Phloem necrosis, bleeding canker of Norway Maple, Cankerstain of Plane, and numerous other disorders make the need for such work glaringly apparent.

Sixth: The Development of Better Shade and Street Trees by Breeding and Selection. This is possibly a part of the fifth objective but it should be pursued aside from the development of disease resistant strains of trees. Form, smoke resistance, and tolerance of general adverse growing conditions, such as street trees are faced with, are important considerations.

Seventh: The Formation of a Lay Section of the National Shade Tree Conference. Much thought will have to go into this consideration, but it has wide possibilities.

Our "tin" anniversary has been a happy one and with it we wish you all a Merry Christmas and a Happy Peaceful New Year.

Treating Spruce and Balsam Fir Christmas Trees To Reduce Fire Hazard

After investigating a number of methods considered to have possibilities for making Christmas trees less flammable, the U. S. Forest Products Laboratory has concluded that keeping the tree standing in water is about the most practical, satisfactory, and convenient method of those tried for reducing the fire hazard and preventing the needles from discoloring or falling. Additional protection against fire can be provided by the use of fire-retardant coatings in conjunction with the water treatment if the retention of the natural color of the foliage is unimportant.

Recommended Treatment

The procedure recommended for the water treatment is as follows:

1. Obtain a tree that has been cut as recently as possible.

2. Cut off the end of the trunk diagonally at least 1 inch above the original cut end. Stand the tree at once in a container of water and keep the water level above the cut surface during the entire time that the tree is in the house. If the tree is not to be set up for several days, it should be kept standing in water meanwhile in a cool place.

If started in time, this treatment not only will prevent the needles from drying out and becoming flammable, but it will also keep them fresh and green. It will, in addition, retard the fall of needles of such species as spruce, which loses needles very easily, in contrast to balsam fir, which retains its needles even after the branches have become dry and the needles brittle. Freshly cut spruce or balsam fir trees standing in water cannot be set on fire by candle or match fires, but, of course, will not withstand a large source of heat.

Decorative Coatings

Several types of fire-retardant coatings that either prevent or greatly retard flame spread when applied to wood will provide similar protection when applied to Christmas trees.

For those willing to undertake the extra trouble and expense in the use of decorative coatings, the following simple formulations are suggested:

FORMULA I

(Produces a shiny transparent colorless coating)

Ingredient	*Parts by Volume*
Sodium silicate (water glass)	9
Water, containing a wetting agent, such as Dreft, Vel, or Breeze, (about 1 teaspoon per quart)	1

(Continued on Page 22)

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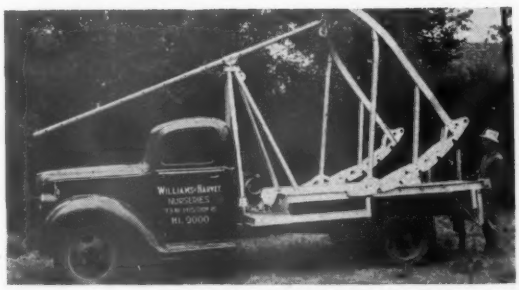

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WE CAN SAVE OUR ELM TREES

By R. P. Marshall

Director, Bartlett Tree Research Laboratories
Stamford, Connecticut

Photo courtesy Tim Janosko

Beautiful American Elms on the Town Hall Green, Stratford, Conn.

Most of our elms can be saved. They are not going to vanish from the American scene if we put up a fight.

Elm trees are as much a part of America as fields of ripening corn, maple syrup and baseball.

Ever since the Colonists whittled paths through forests, the American elms have canopied New England streets. Their long, graceful arching arms sometimes tower 100 feet or more into the sky. They are veritably a race of giants.

But giants though they be, many of them have succumbed to the Dutch elm disease. This scourge, which came from Europe surreptitiously in a shipment of logs, has marched deep into New England and across wide expanses of the Middle West. It has left a devastating toll in its wake.

Yet the situation is not hopeless as many fear. This fear is based largely upon a misconception that the Dutch elm disease is very similar to the chestnut blight which completely killed off the American chestnut several decades ago.

The two diseases are alike in that both are caused by fungus. But they differ in the way they act and how they are transmitted; and therein lies the hope of saving our elms.

The chestnut blight attacked the inner bark, and once the fungus girdled a tree, death followed soon. The spores (or seeds) of the fungus were spread by winds and rain. The fungus also lived on in dead wood tissues so that after a tree died and a new chestnut sprouted from the roots, the blight was there to quickly infect the sapling.

The Dutch elm disease fungus penetrates the tree's vascular system—the tiny tubes that run through the wood. But it does not play the lone wolf as the chestnut blight did. It works hand in hand with bark beetles which transmit or carry the spores from tree to tree. Neither does the disease live on in dead tissue. Moreover, once an elm has died, it does not tend to sprout and thus keep the infection strongly alive.

Back in 1934 when the Dutch elm disease was commanding serious attention of Federal and State authorities, the late Dr. E. P. Felt, then director of the Bartlett Tree Research Laboratories, said: "We must learn to live with the disease."

Millions of dollars were spent on eradication, but the disease continued to spread. Dr. Felt urged that foremost emphasis be put on limiting the spread. The years since have proved the wisdom of that advice.

We speak now of Dutch elm disease control, not eradication. Control is a double-edged sword: an attack on the bark beetles—the carriers—and against the disease itself. It is like the fight against malaria in which you battle not only the disease but the mosquito which transmits it. Or like bubonic plague, which requires control of the flea infested rats which spread it. Politics cannot successfully be used in the control of human ills and equally so in plant disease control.

Control begins with keeping elms strong and healthy, for healthy trees are resistant to bark beetle attack. It consists, in essence, of sound tree care that has three distinct phases: timely and efficient spraying, feeding, and sanitation. Chemotherapy as developed by the Connecticut Agricultural Experiment Station shows promise.

All elms should be given at least two leaf sprays in the spring to help curb insect attack. Leaf-eating insects defoliate a tree, and a tree defoliated becomes weak and sickly. Bark bettles limit their work largely to weakened trees. That is why spraying is of much elementary importance in promoting tree health.

The elm leaf beetle, the cankerworm, tussock moth caterpillar, leaf aphids, even the Japanese beetle, and in New England the gypsy moth all feed on the elm leaf. Unless curbed by spraying, they conspire to weaken an elm until the bark beetles move in, carrying with them the Dutch elm disease.

As if these were not troubles enough for an elm leaf, there is the black leaf spot lurking around. This is a fungus disease which also causes defoliation.

Spraying, of course, is the safeguard. But this should be coupled with feeding. A tree given a well-balanced food responds with vigorous growth and this means good health. Like a healthy human being, a healthy tree can better fight off diseases and better withstand insect attacks.

Equally important is sanitation, the removal and burning of all infected elm branches or trees. The object is to destroy the sickly wood before the bark beetles escape to spread infection to other trees. Careless disposal of diseased wood is futile. To cut down a diseased elm tree and then cart the wood to the village dump will not destroy the beetles nor limit the spread of the disease. It must be burned or chemically treated before the beetles emerge.

Every tree that has Dutch elm disease

(Continued on Page 19)

GYPSY MOTH CONTROL WITH DDT

By J. M. Corliss

Bureau of Entomology and Plant Quarantine, Agricultural Research Administration,

U. S. Department of Agriculture.

Approximately 250,000 acres of woodlands have been treated for the control of gypsy moth with DDT by the U. S. Bureau of Entomology and Plant Quarantine together with cooperating agencies especially the Bureau of Plant Industry of the Pennsylvania Department of Agriculture and the New York Conservation Department. We started using DDT for gypsy moth control in the summer of 1944 when we sprayed approximately 5,000 acres. More than 82,000 acres of forests infested with this insect were treated with DDT in 1946, and more than 163,000 acres, or 255 square miles were treated in 1947.

The gypsy moth seems to have survived in only three small locations in the area treated by airplanes in 1946. We think this was due to the fact that the treatment was applied too late in the season. There may have been some early pupation of the gypsy moth in these places, and DDT is not effective against the pupae. A small infestation was found also in 1947 in one place that had been treated in 1946. This infestation was found early, the area was retreated, and the insect has not been found there since. Spraying was discontinued in 1947, well in advance of pupation.

All treated areas have not been thoroughly examined. However, many of the pockets known to have been heavily infested previously have been critically examined up to August 1947. No infestations have been found in any of the areas that were treated. Further examination by use of sex attractant traps may lead us to infestations if they are present, and the areas will be examined later by manual surveys.

We use glass plates in the forests to check the actual deposit of DDT during spraying. Approximately 5,200 plates were used in Pennsylvania, all but 125 of which were found to have received a good deposit of DDT. The areas from which plates with unsatisfactory deposits were taken were resprayed.

N3N-3 biplanes have been most frequently used in the work. Pilots have treated over 1,000 acres a day on several occasions with one such plane. We have just acquired two Douglas DC-3 airplanes, one of which will be equipped for spraying next summer. This type of plane carries 1,000 gallons of spray material and will treat 1,000 acres of woodland in 10 minutes or less of flying time. High-speed blowers on the ground can treat 75 to 100 acres of woodland along roadsides daily.

All our work has been done in close cooperation with other agencies. Early experiments were carried on by the Research Division of our Bureau. They had to determine the proper formulations of DDT to be used, the most suitable time of application, and the best type of equipment for the purpose. It was not at first known how effective this insecticide would be against the gypsy moth and what effect the material might have on other insect and animal life, including birds, bees, and fish. It was necessary to determine whether it would be harmful to forest foliage or indirectly to human beings. In the early research work, we assisted responsible Federal, State, and local agencies.

A test was made in August 1944 to determine if, as a result of applications made to forest areas, enough DDT would get into a water reservoir to be hazardous to humans drinking the water. A watershed consisting of approximately 40 acres surrounding a pond of about 4 acres which contained approximately 1½ million gallons of water was sprayed by airplane. Five pounds of DDT in 5 gallons of oil solution were used per acre. The pilot did not fly directly over the pond but some of the insecticide drifted onto it. Many kinds of insects were killed both on land and in the water. A few frogs and small fish were killed. However, the area was quickly repopulated. Before and following the spraying, samples were taken of the surface mud and of the water. Careful analysis showed there was not enough DDT in the reservoir to be harmful to human beings. Analysis showed that only 0.01 of a part per million of DDT had leached into the reservoir. This is equivalent to one part in 100,000,000 or a human would have to consume about 25,000 gallons of water to ingest one gram into his system. The Food and Drugs Administration of the Federal Security Agency rendered an opinion that watersheds treated at the rate of 5 pounds of DDT in 5 gallons of oil solution per acre would not create a health hazard. Today we are using only ½ or 1 pound of DDT in 1 gallon of oil per acre for control of the gypsy moth.

Throughout four years of spraying with light applications of DDT, careful observations have been made in cooperation with the Fish and Wildlife Service and other agencies to determine the effects of DDT on wildlife. No injury has been noted. These observations have been carried on in treated areas in New England, New York, and in Pennsylvania. Observations similar to those made by ornithologists in Pennsylvania have been carried on in New York, Massachusetts, and Vermont. No injury has been reported to birds even during their nesting period.

A test area one mile square was treated for insects in 1945. A careful census was made of insect and bird life prior to, during, and following the spraying. At the beginning of this experiment 5 pounds of DDT in 5 gallons of oil solution were applied per acre. This resulted in minor mortality to birds. The dosage was then reduced to 1 pound of DDT per acre. Since that time there has been no mortality or disturbance of birds noted in the forests which have been treated with a 12 or 6 per cent solution applied at the rate of 1 pound of DDT to the acre. Many insects besides the gypsy moth, including many beneficial ones, were killed within the area even at the 1 pound dosage, but the area was repopulated by many species, though not by the gypsy moth, within a few weeks either by infiltration or reproduction from survivors. This area has been examined on numerous occasions since, and the general insect and bird life appears to be normal.

A beehive was placed in this block before spraying with DDT. This colony was examined later and found to be in as good condition as a check hive in an unsprayed location. Since then, both hives have been kept in the yard of our Moosic property in Pennsylvania. All of the area surrounding them has been sprayed with DDT at least once and much of it several times in connection with demonstrations. These hives have continued to be healthy and normal.

A fish census was made of a mile-long brook running through a forest area, stocked with live fish traps, during the early experimental work. This stream was treated at the rate of 1 pound of DDT in 1 gallon of oil per acre. The pilot was instructed to fly some 50 to 75 feet from both sides of the stream, guided by markers. The swath delivered by the plane was about 100 feet in width, so some DDT drifted into the stream. An examination of the stream following the spraying showed no mortality of fish. A three-mile stream was treated in another area, using the same material and dosage. A census was made of the fish in this stream and several weirs were used; also several live fish traps were installed. The pilot

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THE CASE OF THE TREE THAT RAINED

By Hollis J. Howe
Consultant
The Maryland Tree Expert Company, Baltimore, Md.

Early in October the comparative complacency of Sparrow's Point, Maryland—the rythmic hum of one of Bethlehem Steel's largest plants nothwithstanding—was thrown off balance by an unusual occurrence, at least for this section of the country. A linden tree on C Street had suddenly caused rain to fall 24 hours a day for about a week, whereas there had been no orthodox precipitation for about the same length of time. The owner of the tree was somewhat bewildered.

The chief of the local weather bureau was called and he advanced the theory that the very humid air that had obtained during the previous week had condensed on the tree and was dripping to the ground. He recalled a "similar" condition in Hawaii where moisture-laden air from the sea produced sufficient condensation of moisture on the trees which, upon falling to the ground, caused grass to grow under the trees, but nowhere else. He weakened his theory somewhat by expressing wonder as to why the remaining trees did not also "rain"; but one other tree did "rain"—another linden, one poplar tree removed from the original and most drippy one.

The tree firm with which the writer is connected was consulted and it was agreed that an investigation and report would be undertaken. Meanwhile, the usually unsuperstitious populace begun to indulge in occult and supernatural omens. One school of thought was that the tree was "weeping," while another maintained that some sort of shrine was being conceived. The man of the house, once having seen a vision of his departed mother, was in hopes he was not about to receive another visitation. Many others regarded the phenomenon as a possible evil omen or, at least, a miracle.

There were no giant aphids on the branches and the moisture was not of a honey-dew character. It was watery and had a neutral taste.

Sparrow's Point, being "made ground" and its surface being but about two feet above the brackish water-table, to which industrial polution would no doubt have some unnatural effect, there seemed to be a possibility of some chemical reaction. Subsequent testing of the soil, however, revealed it to be not acid but rather too highly alkaline for good tree-growth. This was due, perhaps, to the slag fill employed in the making of "The Point." Coke treated with lime produces slag, it is understood. This condition was soon discarded as being a causal factor, however.

Photograph by Mottar

Dr. Curtis May, President National Shade Tree Conference, and Hollis Howe, the author. Dr. May exclaimed, "If the boys at the Shade Tree Conference could see me now."

The weatherman returned to the scene and, while he had erroneously called the tree a "poplar" from the first, he now attributed the "rain" to the roots having entered the steam pipes from the central heating plant where the cut-off steam had condensed. A research engineer advanced the theory that heat rays from a jet of flame burning off excess gasses at the steel plant caused moist air to rise, condense and fall on the tree, inadvertantly so located and in such a leafless condition as to be unable to absorb the moisture and thus necessitate its falling. These theories were no more accurate than one advanced by an ancient Negro and respectfully accepted by the gullible multitude that the tree was "operating in reverse and sending its sap upward instead of downward, as it should be doing at this season of the year."

Not having seen a case of the kind before and being inclined to favor the polluted soil-moisture theory, the writer made contact with Dr. Curtis May, Principal Pathologist, Bureau of Plant Industry, U. S. D. A., Beltsville, Md. and President of The National Shade Tree Conference. A tree climber made a third member of the investigating party.

The soil was tested for the presence of gas and its P.H. (7.5) was determined. Borings were made and the wood also tested. These tests proved inconclusive.

Branches were next examined, without disclosing anything existent that might be attributable to the condition. But there was something non-existent that was significant—the presence of moisture in even the most minute amount upon them. After discussing the possible effect of surface tension on such minute drops of sap, water or nectar and their possible ability to fall without leaving a trace behind, it was decided to send the climber up in the tree to observe, if possible, just where the moisture did originate.

The man was, accordingly, sent up as high as he could go and be comfortable, where he sat down and waited. After a period of about five minutes he called out "Eureka," or words to that effect. He had finally seen many flat-bodied elongate insects, about ¼ in. wide and ⅝ in. long, closely adhering to the bark and having such protective color-resemblance as to be virtually invisible until they began to eject moisture in atomizer-like fashion. This was apparently the watery portion of the sap which they had drawn in through the probocsis, extracted the carbohydrates and discarded. The insect is commonly

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Forester vs. Arborist

R. R. FENSKA, *Secretary-Treasurer*
Westchester Country Tree
Protective Association,
White Plains, N. Y.

Recently the following statement appeared in the JOURNAL OF FORESTRY:

"Tree surgery—The public insists on picturing the forester in a tree surgeon's garb. All right, let's satisfy the public. The principles of tree surgery can be taught to a forester in a short time. With his fine background in botany, dendrology, soils, etc., it's only a matter of showing him how. Acquaint him with the tools of a tree surgeon; give him a few demonstrations of how to combat insects and diseases and let him do it. On the street of any town he will find plenty of material to work with. Foresters, sufficiently interested in this field could follow it up in more detail on their own. Many tree surgeons of comparatively limited schooling are making an excellent living out of this easily acquired art. The forester can, too." This is so out of focus with respect to facts that a reply is imperative so that the public and the foresters not in arboriculture may not be misled.

The writer is a graduate of the Yale Forestry School who has taught forestry in three of the large universities, East, West, and the Lake States. He has had practical experience with federal, state, municipal, and private forestry agencies. His field work has taken him to every section of the United States, besides ten foreign countries.

For the past 15 years he has been connected with one of the largest commercial tree expert companies in this country. He is the author of the *Tree Experts Manual*.

The above is cited merely to show that the writer has had sufficient experience to comment on the reference to "Tree Surgery" as it appeared in the JOURNAL OF FORESTRY.

First, let us take a glance at the two professions, forestry and arboriculture.

Forestry—Foresters have applied their scientific knowledge in the practice of silviculture for hundreds of years. The early beginning of their profession was probably in the well-known Silhwald in Switzerland where the monks planted and cared for this forest nearly a thousand years ago.

About 50 years ago the United States began to take stock of its own forest resources. Since this time we have gradually developed a system of silviculture adaptable to our own species of trees and economic conditions.

Arboriculture — The American arborist or tree expert has been around in this country for nearly as long as the forester. First, as the itinerant tree surgeon, but of late with more professional standing. In Europe the arborist is practically nonexistent in spite of the fact that as far back as 1640 Thomas Lawton had published in England his book describing the treatment of tree wounds. The reasons for this nondevelopment of the arborist's profession anywhere except in the United States are the economic conditions.

In Europe the limited work on shade trees is very amateurish as anyone will testify who has seen the estate and city trees over there. Yet, this is in countries where the scientific regulation of forests is of the best and the forester is in high standing in his profession.

In the United States if a census were taken it is very likely it would be found that the men who make their bread and butter in the care and treatment of shade trees outnumber the foresters in actual practice. Furthermore, while a forestry school graduate may still practice his calling in any state in the union without a license, the arborist has brought his profession to the point where he must pass an examination in some of the states before he can solicit shade tree work. He is in a profession which as law, medicine, and engineering, requires a license based on an examination before a state board to determine the technical qualifications of the applicant. The public thus recognizes that the arborist is something more than a "forester in a tree surgeon's garb," or a man "of comparatively limited schooling."

Forester vs. arborist—It is true that the forester's general knowledge of botany, dendrology, entomology, pathology, chemistry, and soils is the same as the arborist's, but there is a difference in his application of these basic sciences to the trees in the forest as compared to the individual shade tree.

The forest is an association of trees existing as a unit with well-recognized characteristics, while the shade tree is usually an individual specimen. This individual requires different treatment from his "brethren" in the forest where mutual benefits are derived by close association in a community. For example, even the form of a tree along the highway is different from the same species in the forest. Furthermore, the tree in the forest may be worth $10 as stumpage or sawlog material, whereas the same specimen on a front lawn may be valued a hundred times this amount. A shade tree appraised at $5,000 is not an unheard of fact in this country. It is primarily a matter of location.

Probably the greatest difference between the forester and the arborist is in the matter of "diagnosing tree trouble." It is here where the early itinerant "tree surgeon" got in bad repute with the public. He often treated trees for ailments that did not check with scientific facts. A 'tree surgeon" working on a tree once was asked, "What's the trouble with that tree?" He replied, "Why this tree has the 'Aurora borealis'." In other words, he didn't know, but he was treating it anyway.

In an effort to give the public honest shade tree service it was necessary for the commercial tree companies to develop a technique based on established scientific facts. The knowledge of scientists and commercial tree men was pooled in private research laboratories and the National Shade Tree Conferences. Through this effort there has developed a shade tree science and practice which is now recognized to be on a professional basis.

At the present time the forester just out of school has to acquire this knowledge through special training given by the commercial tree companies and the National Arborist Association, or, a course in "The University of Hard Knocks." The latter is apparently what Mr. Vitas has in mind. However, such a procedure is not recommended to the forester just out of school unless he is kept under observation by one of the "old timers" in the business. To diagnose shade tree ailments correctly is sometimes very difficult, and taxes the technical knowledge of even the best of the treemen. To put a recent graduate from a forestry college "in a tree surgeon's garb" and cast him adrift on his own resources is not giving him an even "break." Where he is required to appear before a state examining board for a license to practice arboriculture he will appreciate this fact. And, until he is trained in shade tree care, his operations will be unfair to the trees and their owners.

The value of the shade tree compared to the forest specimen makes it possible to apply far more intensive work on the shade tree than the one in the forest. In the forest the control of insects, for instance, is by silvicultural practice, whereas direct application of specific spray solutions is the usual means for control of the insects on shade trees. Foresters know little about the different

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The Arborists Clinic

Saved From Death by Crew of Tree Sprayer

Abram Young, 66, a house painter, of 198 West Eighth Avenue, was painfully burned about the legs this morning about 10 in a fire which occurred at the apartment store building at 229 Bleecker street. Quick action by a tree-spraying crew, which happened to be nearby, was instrumental in saving Young's life and also heavy damage to the property.

Crew Did Splendid Job

The tree-spraying outfit, owned by Douglas Campbell, tree specialist, of Johnstown, New York, just happened to be filling its tank from a hydrant in the street within a few feet of where the fire broke out. Joseph M. Lackmayer, Sr., was with Campbell at the time.

Young was engaged in painting the large wooden structure which houses a store, barber shop and apartment, owned by Mrs. Emily Rowaday. Joseph Rowaday operates the barber shop, and the family occupies the apartment over the store.

When Young's trousers caught fire, and he was unable to extinguish the blaze, due to turpentine and other inflammables about, he rushed out the back door and called for help. Campbell and Lackmayer, engaged in filling the sprayer tank, turned the hose on Young, extinguishing the blaze before it could reach the upper part of his body.

Got Fire Under Control

While someone was calling the fire department, Campbell and Lackmayer turned their hose into the flaming rear stairway. By this time, the fire had gained access to the second floor apartment. They maintained a stream on the blazing stairway until the fire was under control.

Jack Robinson,
Hardie Mfg. Co.

Dear Ed:

I have obtained a piece of equipment that I now find indispensable and probably some of your other Foresters and readers would be interested in this labor saving device.

Last fall, we purchased a tower from the Public Service Transportation Company and mounted it on a Chevrolet chassis. This tower can be extended 20 feet into the air. The platform is approximately three by eight feet and revolves on a fifth wheel, covering a full circle. We find this tower very useful in removing broken branches and ice storm damage. On a day that a man can not climb a tree with safety, he can work from this tower.

The three pictures I have enclosed show a Maple where the leader snapped in a high wind. The second picture shows two men making a cut with a Universal One-man Chain Saw (38 pounds). The third, shows the tower partly extended with a climber painting cuts on the Pin Oak. Incidentally, these flush cuts were made with this one-man Universal Chain Saw.

Photo courtesy Harry E. Turner

The platform truck described in Harry's letter. Watching Donald Schweer demonstrate are L. to R.: Commissioners Arthur L. Felsenheld, Thomas Wood, H. B. Voorhees and Harry E. Turner.

If you would care to use these pictures, you may do so and if you would rather have the negatives let me know. I think you can see the value of this piece of equipment. At a later date I intend to send out invitations to tree men around this area inviting them to a demonstration of this platform. Yours very truly,

Harry E. Turner,
Secretary, Shade Tree Commission,
East Orange, N. J.

Dear Editor:

What this country does need is the Arboricultural Book Series proposed by you in "Trees". I hail this as a most worthy project and would like to see it successfully completed.

I am not a college man but County Agricultural School training and fourteen years of continuous work in the field of horticulture enables me to recognize the importance and value of this undertaking. My work is municipal and under my care are 100 acres of ornamentals. Books by recognized authorities are "musts" with me.

A college professor once told me "The important thing is to know *where* to find the information needed.

The publication of the six or more

volumes proposed by "Trees" would be the answer to the practicing arborists' problems and definitely help to convince the public that arboriculture is a skilled profession when practiced properly.

Sincerely yours,

Nathan H. Clark, Salem, Mass.

Dear Ed or:

I have noted with interest a letter printed in Arborist's Clinic—"Trees"—July-August, 1947 issue, from Virgil B. Cooper regarding disposal of stumps of trees felled for various purposes.

I would like to pass on to Mr. Cooper and others interested, the procedure we have adopted in the Chicago Park District.

We use a Mall Gasoline Engine Chain Saw for all cutting and bucking operations and have found it to be compact and light enough for efficient stump removal using the following method:

Dig a trench around the stump to permit the use of the chain saw below the surface of the ground. A trench two (2) feet wide by one (1) foot deep is enough to accommodate a three (3) foot chain saw. For larger stumps use a four (4) foot chain saw. Cut through the stumps and tree roots at least eight (8) inches below ground level. After the roots have been severed, remove the stump, fill in the area and re-sod. Sprouts will grow from the covered stump roots. These are easily removed by one man using a sharp spade and cutting off the sprouts at their source. Cutting the first year's growth usually ends the sprout problem.

This method of stump removal has proven very successful in the past since no unsightly stumps remain as an eyesore or a menace to public safety.

Roy O. Walker,
Landscape Construction Supervisor,
Chicago Park District.

Roy Walker describes the action of chain saws in his letter above.

See Paul's letter for explanation of this root removed from a sewer.

Photo courtesy Paul L. Sandahl

Dear Ed:

I am inclosing herewith two different items. I did not want to waste an extra postage stamp.

One is a snap shot showing a mass of cottonwood roots which was removed from one of our sewers in Greenwood Park. The picture shows the trunk of the tree which did the damage and it was taken out immediately afterwards. As may be seen from the picture, the first six feet of the obstruction completely filled the 8" sewer and it was all attached to a root about 1½" in diameter through a break in the pipe. The severed end of this root may be seen in the picture against the man's shirt at the left of the picture. After this was cut, the whole mass was pulled out with hardly any effort and it measured 22 feet long. I thought perhaps the boys would be interested in seeing it.

Number two is a clipping from yesterday's morning paper telling of the death of a young man who had been trying to do tree work without training. It is evident that he did not need a safety belt if he did not want to live any longer. I failed to get the clipping from the paper which told the original story of Mr. Stacy, mentioned in the last paragraph. Of course, a sixty-four-year-old person would never get the opportunity to climb a tree for our department but these instances show that neither the young or the old are safe without a belt. The work that has been done by these two men has been entirely of the rough nature that is known to all tree men and we are sorry that the roughness finally kicked back on them.

With kindest personal regards and hoping you are by this time having the kind of nice weather we are having, I am—(We are now, Paul: Ed's Note.)

Very truly yours,

Paul L. Sandahl,
Supt. Des Moines Park Board.

Starlings Carry Fight Right Into Owls' Who-Whos

Lancaster, Pa.—City officials conceded today that the starlings won the first round in a "battle of wits" with three double-faced aluminum owls.

The owls widely-heralded as the bane of all starlings, were placed strategically on ledges of the newly-painted and cleaned county court house at dusk yesterday.

Then officials retired behind venetian blind slats to watch the vanguard of the starling horde which for years has wintered at the court house.

The starlings swooped in with raucous cries and took over the court house, as usual. —*Jack Kenealy.*

Trees...

ODDITREES

Dear Ed:

Here is an interesting tree growing up in Wisconsin.

The tree, a Norway Pine, is located 20 miles northwest of Minocqua, Wisconsin, on Thorpy Lake. According to the owner more than three generations have occupied this location, the present building having been preceded by another which was torn down and the new building established on the old stone foundation. There is no basement under the house, which is heated by fireplace on cool summer nights and during winter hunting seasons.

The bark on the tree where the collar is placed has been smoothed so that a one-inch felt pad would fit tightly. This pad has been pitched to make it water tight and the metal collar has been fastened over the felt pad. This metal collar has been split and attached in such a way to allow for expansion of the tree trunk.

As is evidenced by the photos the tree is in good vigor, and apparently not suffering from its many years of habitation in a man's house. I recall reading about and seeing pictures of people living in tree houses. These were, I believe, in that summery state of (your pleasant memory) California.

—Larry Wachtel, Wauwatosa, Wis.

A Sound Street Tree Report

By Joseph R. Dietrich,
Supt., Div. of Parks and Trees, Greenwich, Conn.

Greenwich is no longer a mere town bordering the New York State line; it is developing rapidly and is approaching the point where we must either reside with or rectify our past mistakes. As with our Parks and Recreational areas the program for our Tree Department must follow a similar course of progressive planning. It has been said that because of land values—our investments in development—it is no longer possible to leave our errors behind while we venture on into new territory. It is well now to bring the mistakes of the past into sharp focus for conversion into future hopes. It is a case now of determining what, where, when and the anticipated costs of the town's needs in carrying out a well-designed Tree Program. It is a well known fact that trees, either private or municipally owned, exert great influence on physical, social and economic aspects of any community.

We in Greenwich do not allow each property owner to decide the width, depth, type or color surface in our pavement areas, nor do we permit each owner to choose his own size or type of pipe for sewers or water in front of his home.

Alert well-planned communities do not permit each property owner to choose the size, variety or planting area for street trees. Such communities determine and enact sound policies and provide for their enforcement. An ordinance is in process of preparation by the Tree Warden to allow for proper and adequate planning in this respect. Under the present set-up there is nothing to prevent home owners from planting as many trees or any variety they see fit along town-maintained highways. Once these trees are established it is a disagreeable task for their removal to conform with adequate public safety, spacing and maintenance purposes. Many undesirable trees are thus inherited by the Town. Costs for such haphazard plantings run high. Less trees properly spaced and located and adequately selected as to growth habits, disease and insect resistance would result in considerable future savings to the town as well as presenting a well-organized, properly executed aesthetic development along our streets whether public or private. It is proposed that all such planting shall be approved by the Tree Warden after

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NAA NEWS

By Paul E. Tilford, *Secretary*
Box 426, Wooster, Ohio

New National Arborist Association Members

The following arborists or shade tree expert companies have become members of the National Arborist Association recently: Humphrey Tree Expert Co., N. L. Humphrey, 154 Kensington Dr., Madison, Wis.; Boyd Tree Service, J. B. Boyd, Route 3, Coshocton, Ohio; Neidel's Landscape & Tree Service, John Neidel, Jr., Mtd. No. 4, Oil City, Pa.; Ziesler Tree Experts, R. B. Ziesler, 811 North Columbus St., Lancaster, Ohio; K. P. Soergel Tree Service, Kenneth P. Soergel, R. D. 1, Box 164, Gibsonia, Pa.; Tree and Shrubbery Spraying Service, Robert M. Dye, 20063 - 19th Ave., N.E., Seattle 55, Wash.; Gustin Landscape and Tree Service, Ray Gustin, Jr., 1535 W. Falkland Lane, Silver Spring, Md.; and Logan Tree Service, Robert Logan, 43 Tamarack St., Buffalo 20, N. Y.

The Association now has a membership of 110 located in 23 different states.

* * * *

Economic Units in Shade Tree Work

Back in the early days when the horse was the power plant on the farm, the agricultural economists figured that 13 acres was an economic unit for potato growing. A farmer couldn't afford to own the special tools necessary for potatoes—a planter, weeder, sprayer, digger and grade—unless he grew at least 13 acres of potatoes.

During the past year I have often wondered about economic units for arborists. How many men must an arborist have working before he can quit working on the job himself and give his time to running the business? When can he afford to have an office, secretary and a warehouse? When do salesmen and assistant managers come into the picture? I am still wondering but a few things seem to fall in line.

A good arborist with two or three helpers, a truck, some equipment and a sprayer; by working on the job himself; doing what bookkeeping and billing he does at night, on rainy days and Sundays, can make a fairly good living if he is located in the right place. He has his own wages plus a profit, if one is made, on the work. His overhead is very low. He has no office, except at his home and his wife helps him by answering the telephone and with the book work. Such an arborist, located in a small community, may do very well. In a large community where he cannot become well known and where he is competing with larger, well established organizations for bigger jobs, his problems are more numerous and are magnified. His labor will not be farm boys who can always do something else if tree work slacks off or during periods of bad weather. He cannot sell Mrs. Gotrocks a job of spraying while he himself is helping to spray the trees up the street. She does not know and will not call his house and give him the work. Under these conditions there is a big question as to whether the arborist is better off to be individualistic and have his own one-crew outfit or to work for a larger well-established concern. There is a big turnover of these small concerns where the competition is keen. So much for the first economic unit.

Now if the owner gives all his time to managing the business and does no production work himself, what sized organiaztion must he keep working? He must have an office, a full-time secretary, a warehouse for storing equipment and materials, and some good foremen. In other words, he really has overhead. If he does the selling, makes most of the inspections, handles complaints, hires the help and attends to the dozens of other things necessary to run the business, how many men must be on productive work so that when the bills are paid the owner will have left a good salary plus a legitimate profit for the risks he has taken? Observations lead me to believe that the answer is 12 to 16, three or preferably four crews. This means 3 or 4 foremen. There should be one outstanding foreman who can help in lining out the work and in getting the men on the job. This foreman will take charge when the boss is away for a day or two and he will help some with supervision on jobs where the foremen are less experienced in addition to running his own crew.

When the organization enlarges further, takes on salesmen, a manager and supervisors, I am lost. But there is one thing I am sure of and that is, the volume of business must be increased each time the overhead is increased. For each additional white collar worker, there must be more men out on the job planting, spraying, pruning, clearing right-of-ways, etc.

In discussing this I may be as far off the beam as the boy who had been away to business college was, when after examining his father's books, told his dad—"The books show that this business is bankrupt." "Son, maybe the books show the business is bankrupt," replied the father, "but neither the books nor the business are any different than they have been for the past 20 years. During that time I've had a pretty good living out of the business and been able to send you away to college."

* * * *

Is This Tree Necessary?

Question: Did you ever have a case where the loss of trees increased the value of a property?

Answer: I have had cases where I think the loss of trees increased the value. I am satisfied that the hurricane improved some properties instead of hurting them. Of course, I mean after the damage was cleaned up.

Questioner: That is the point I would like to bring out. In many cases there were trees near houses where they shut out light and air. Such trees should have been removed previously and their loss due to the storm did not decrease the value of the property. In many instances the value of the property was actually increased by the loss of trees.

The above question was asked by F. L. Parr of Hicksville, New York, at the conclusion of Norman Armstrong's talk "Shade Tree Evaluation Formulas" given on the National Arborist Association program at the Shade Tree Conference meeting in Cleveland.

There are many places which would be improved and would be much more pleasant places to live if a tree or several trees were removed. Trees are often so close together and so near a house that they completely shut out all sunlight. The result is a dark, damp house—almost a morbid condition. Such dense shade eliminates all possibilities of a good lawn, healthy shrubs and flowers to brighten up the surroundings. The effect is often downright depressing.

Take down a tree or several trees if necessary—let in some sunlight. Certainly light and shadow are more desirable than continuous dense shade. Open up a vista to reveal the distant valley, peak, meadow, lake, or just a little bit of the plain outside world and permit an escape from otherwise closed and depressing surroundings. Make it possible for shrubs, flowers and lawn grass to grow. What now feels like a dungeon because of too many trees can be changed into a pleasant, cheerful place to live.

Trees are only one of the components which enter into making a home beautiful. When they override and eliminate

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Tree Report

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prior consultation with interested property owners and other agencies.

With the present and future expansion of the Town, many more headaches can be anticipated as private roads are accepted for maintenance unless some preventive measures are undertaken.

A considerable backlog of work was undertaken by the Tree Department during the year 1946 in an attempt to catch up on items neglected during the emergency period because of the shortage of labor and materials.

Due to the impossibility of obtaining skilled tree men to perform our operations it was decided to start a training school utilizing returning veterans interested in this type of work. An On-the-Job-Training program was set up and accredited by the State Board of Education. Due to the advantages specified in this set-up we soon had a large list to select from and were able to develop an organization which accomplished and is still accomplishing a great deal of work. A saving to the town was an additional advantage of this program since we were able to obtain such personnel at a training rate of pay with additional subsistence payments granted these men by the government.

The extent of work accomplished by the Tree Department can be determined from the following report:

Dutch Elm Disease:

The increase in this menace to our remaining elms in Greenwich during this past year was discouraging but the increase throughout the entire state followed the same trend and in spite of indications otherwise, Greenwich still maintains its record of having the lowest infestation in comparison with surrounding municipalities.

It is believed that the increase of Dutch Elm Disease through the many towns and cities has resulted because of the impossibility of accomplishing necessary preventative maintenance during the emergency period. Considerable work is being done by the Experimental Stations in combating this disease. Disease resistant elms have been developed in one instance but it will be years before a sufficient supply is available for the general public. Chemotherapy has advanced interesting returns and may result in future saving of many of the existing elm trees. Experiments with DDT have had some success in controlling the bark beetle a known carrier of the disease. All in all, the future outlook is not too discouraging and it is my belief that if we can continue our own program of isolating and destroying known sources of the disease that such accomplishments will reward us well in future years even if we retain only a token of our many stately and aged specimens throughout the town.

Considerable effort along this line was put forth during the year 1946. In addition to the assistance of the numerous Garden Clubs and interested property owners the time of one man from the Tree Department was spent entirely on scouting and plotting the disease outbreaks.

A tabulation of this one item is as follows. During the year 1945 approximately $1725.00 was expended for this work while in 1946 the sum of $6,-233.70 was spent.

1. Scouting, sampling and laboratory work (hours)	761
Total number of trees sampled	540
Trees sampled on private property adjacent to town trees	200
Trees sampled on town property	340
2. Removals for Dutch Elm Disease	
Total town trees removed	140
Total private trees removed adjacent to town trees	23
Total trees removed	163
Average size town trees	27"
Average size private trees	24"
Total cost of removals	$5,600.00

Spraying

The annual battle against canker

Watch for...

the ROTOMIST

Newest In Shade Tree Sprayers

Fast - Safe - Economical

Improved CONCENTRATE APPLICATOR

Here's What the John Bean Rotomist Does:

- **GIVES FAST, THOROUGH COVERAGE—Does four times as much work as previous shade tree sprayers.**
- **CUTS LABOR COSTS—In test cases, the Rotomist cut labor costs by as much as 90%.**
- **PROVIDES SURE PROTECTION—Greater volume of air output for thorough penetration and coverage.**
- **SAFE—No staining of houses or automobiles, always a problem in residential sections.**
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- **VERSATILE—Applies liquids, dusts, mixtures and suspensions; all types of spray materials.**

Modernize now, with this new concentrate sprayer—tests for three seasons have proven the advantages of concentrate spraying. Write for further information.

JOHN BEAN MFG. CO.

DIVISION OF FOOD MACHINERY CO.

LANSING, MICH.

worm, tent caterpillar and elm leaf beetle continued with satisfactory results. Experimental work by the Department with DDT in this undertaking indicated success at the close of the season. This work will be continued and reported on fully during the next season.

1. Canker Worm and Elm Leaf Beetle spraying report:

Spraying Time (hours)	252
Elms	7630
Linden	466
Apple	732
Cherry	667
Total	9495
Gallons spray	85,300

AVERAGE PER TREE

Spraying time (min.)	1½
Labor time (min.)	6
Spray material (gal.)	9
Labor cost	.09
Labor and material	.15

2. Tent Caterpillar Spraying Report:

Spraying Time (hours)	75
Cherries	4589
Apples	1553
Total	6142
Gallons spray	11,600
Labor cost	$185.70
Material cost	152.32
Total cost	$338.02
Average cost per tree	.05½

3. Scale Spraying Report:

Spraying Time (hours)	24
Pines	234
Spruce	288
Junipers	538
Apples	334
Lilacs	32
Total	1426
Gallons spray	1445

AVERAGE PER TREE

Material (gal.)	1
Labor time (min.)	2½
Spraying time (min.)	1
Cost per spraying	.05½

4. Miscellaneous Spraying:

Greenwich Point-Poison Ivy Control —Spraying time, 58 hrs.; spraying material, 360 gals.; labor, 116 hrs.

All parks—Lace Bug Control—12 hrs.; 1200 gals.; 36 hrs.

Experimental use of DDT on Canker Worm and Elm Leaf Beetle—4½ hrs.; 575 gals.; 12½ hrs.

Borer Control on Dogwoods—23 hrs.; 26 gals.; 31 hrs.

Tree Removal

Considerable work was performed on cleaning up dead, diseased and dangerous trees at various parts of town. A total of 376 miscellaneous trees with an average of 21" diameter were removed.

	Trees
Greenwich	202
Old Greenwich	40
Pemberwick	6
Riverside	30
Cos Cob	38
E. P. C.	22
Glenville	38

Pruning

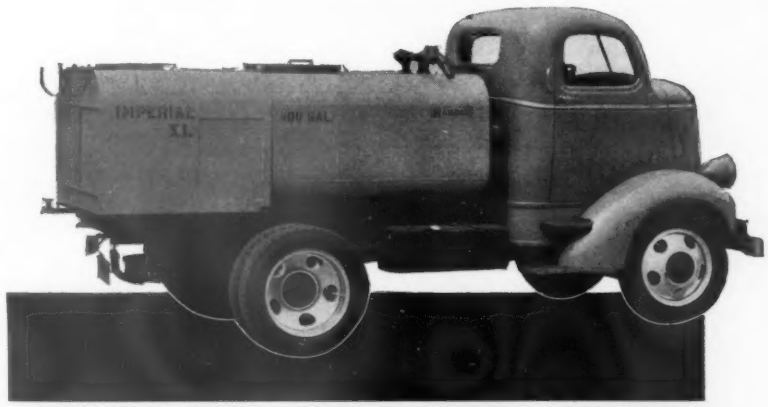
In order to catch up on this much needed item of work, various sections of the town were mapped out and priority given to the worst areas. The remaining sections will be undertaken as weather and conditions permit. A total of 1383 trees with an average diameter of 27" were pruned.

Greenwich (misc.)	760
Old Greenwich (Maples)	200
Riverside (misc.)	3
North Greenwich (Oak)	1
Cos Cob (misc.)	43
Glenville (misc.)	311
(Elm)	1
E. P. C. (misc.)	64

Cavity Work

Due to the special skill and training required for this type of work very little could be accomplished with the limited

(Continued on Page 18)



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DEPENDABLE SPRAYERS

Hardie engineering and construction of heavy duty shade tree and public works sprayers embody years of experience in designing and building big sprayers for big jobs. Especially popular with park and shade tree men is a Hardie Sprayer mounted on a motor truck chassis. Such Hardie Sprayers are available in a wide range of capacities with and without power take-off. Custom-built and standard models in many sizes and styles. Write for Catalog.

THE HARDIE MFG. COMPANY

Los Angeles, Calif. • HUDSON, MICH. • Portland, Oregon

"I Saw It In TREES"

Gypsy Moth

(Continued from Page 7)

flew directly up and down the stream and re-flew parts too crooked to cover during the initial flight. A thorough examination was made following the spraying, and a few dead fish were found in the lower end of the stream. Only one per cent of the trout were killed.

No burning of foliage of forest trees has been reported in the extensive woodlands treated by airplanes with DDT at recommended rates of application. The material is very finely atomized, and excellent distribution has been obtained. Burning of foliage, especially of maple, has resulted in some cases following the application of DDT in oil solutions when applied by the axial-flow air type ground blowers. This has usually occurred on trees which received the direct blast from the blower. Burning has resulted in some cases where knapsack sprayers have been used. In most instances, it is believed that this was due to over-spraying and the burning was caused by excessive oil. Men who have been trained in using hydraulic equipment have a tendency to over-spray when using concentrated insecticides. Only a very small amount of DDT is necessary to obtain control of the gypsy moth.

Hydraulic equipment has been used very satisfactorily for applying DDT sprays in many locations. Many towns and cities, property owners, and commercial concerns have one or more hydraulic sprayers and there is no reason for junking such equipment. We are not using hydraulic equipment at this time because our program calls for the treatment of very extensive areas. The newer equipment requires less material, less man-power, and is much more economical. There has been so much said during the last few seasons about airplanes and blowers for distributing insecticides that it should be pointed out that there is still a place in pest control work for hydraulic spray equipment. This will probably continue for a long time.

This is the present story of the use of DDT for gypsy moth control and eradication work as carried on by the Bureau of Entomology and Plant Quarantine and cooperating agencies. Those of us most closely concerned with this work are extremely enthusiastic about this new insecticide because of the amazing results which have been economically obtained. We feel that we can now exterminate the isolated infestation in Pennsylvania quickly and that we can gradually move the infestation in New York State toward the east.

Develop Insecticide Stronger Than DDT

The American Cyanamid Company announced it has developed a new chemical insecticide called "Thiophos 3422" that is five to 25 times more potent than DDT. Company researchers told a news conference that no species of insect or minute animal life among those tested had been found resistant to the insecticide in the laboratory.

PRATT'S Sprays

Specializing for Over 42 Years in Sprays for the Public Sprayer.

- SCALECIDE—The safest of all dormant sprays for shade trees. The only oil spray containing a combination of vegetable and mineral oils for greatest kill of insects and safety to trees.
- SUMMER SPRA-CREAM — A creamy white, 83% stabilized emulsion of oils, especially selected for high insect control and safety. Used both as a Spring spray on evergreens and ornamentals—also as a Summer foliage spray.
- D-X SPRAY—A widely used spray for the control of sucking and chewing insects. Contains 1% rotenone, .37% pyrethrins and 5% DDT.
- PRATT'S DDT SPRAYS are especially developed for shade tree work. Proper formulation of DDT compositions is the key to successful results.
- PRATT'S 50% DDT—A dry wettable DDT that is micronized* to extreme fineness. *Trade Mark Reg. Micronizer Processing Co., Moorestown, N. J.
- PRATT'S 25% DDT—A soluble DDT in a glyceride vegetable oil base of great safety to foliage.
- PRATT'S Emulsifiable 25% DDT—An emulsifiable DDT in an aromatic petroleum derivative base with emulsifier.
- PRATT'S S-30 DDT—A 30% DDT dissolvent in a solvent. Dilutes in kerosene or light petroleum fraction for airplane, mist or fog sprayers.

Ask your distributor or write us

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Hackensack, N. J.
MANUFACTURERS OF
SPRAY CATALIZER, DORMANT SPRA-CREAM, D-X ROTENONE, D-X NICOTINE

N.A.A. News

(Continued from Page 13)

the other components, it is time to eliminate a few trees.

It is not easy to get home owners to remove trees. Altogether too many people seem to feel there is something mysteriously holy about a tree and that one never should be taken down. Sometimes the arborist must make the suggestion many times before the owner will part with an objectionable tree. After it is gone he is happy with the result. Some people just can't stand the "sight of sap."

Yes, I agree with Parr and Armstrong —the loss of trees increases the value of some properties. There are many properties where trees should be removed and not wait for a hurricane to take them out.

* * * *

One of Those Things

Anyone who works with plants expects to find many interesting and unusual things, but when you deal with both plants and people, anything may happen.

Ernest Rumsey, Rumsey Tree Service, out at Van Etten, New York, recently received the following letter:

"Some one gave me your name. I have a pretty white birch tree—someone has girdled it. I'm told the Boy Scouts use the bark to build canoes, but no proof. Can you save my tree?

"Mr. Jenkins just paid $50 for two like me—perhaps my tree is 15 years old. Please may I hear from you."

Mrs. Rumsey suggested it was the Indians who girdled the tree rather than Boy Scouts.

This reminds me of an experience I had a few years ago. A call was received from a lady requesting that I look at her maple tree. The tree was a six-inch Norway and stood at the edge of the garden. The leaves had suddenly wilted, turned brown and were hanging on.

When she took me out to the tree she explained that she liked the tree very much but her husband wanted to get rid of it because it spoiled part of his garden. When I thought that she wasn't looking I pulled the sod back from the base of the trunk and found that someone had girdled the tree with an axe and then pushed the sod back. Intending to cast no reflection on the husband, I was placing the grass back and fabricating a story about a severe blight when she turned around and saw what had happened. I excused myself, not wishing to get into a family argument. The husband was a retired Presbyterian minister.

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Time-tested, effective sprays, skillfully blended with powerful wetting, spreading and penetrating agents, enabling sprays to reach crevices and leaf axils. Complete in themselves. Simply add water as directed for control of both chewing and sucking insects.

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Compounded of selected gums, oils, pine tar, etc. Provides a tough, elastic, quick-drying black coating for live exposed wood. **Will not kill back delicate tissues at margin of cut.**

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A waterless, pourable liquid providing added wetting, spreading and sticking qualities for use in all types of sprays. There are no soap or soap forming materials—will not clog nozzles—can be used with hard or soft water.

TREE FOOD

Based on a uniform blending of richly organic materials compounded to become available gradually over an extended period.

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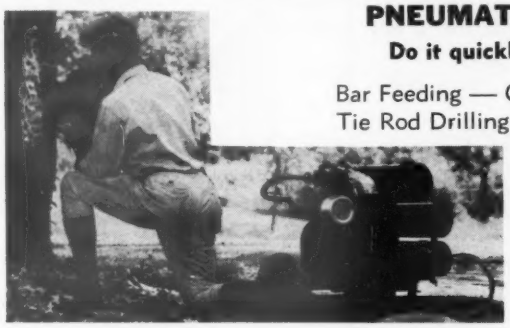
LINDSAY PORTABLE COMPRESSORS



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Bar Feeding — Cavity Excavating
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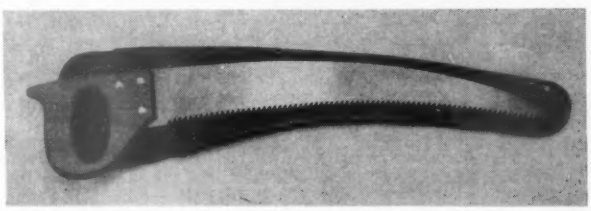

Pruner Heads—Douglas Fir Poles 12'—8' and 10' sectional ladders—Trimmers Saddles—Trimmers 16" boots—pole saws and head.

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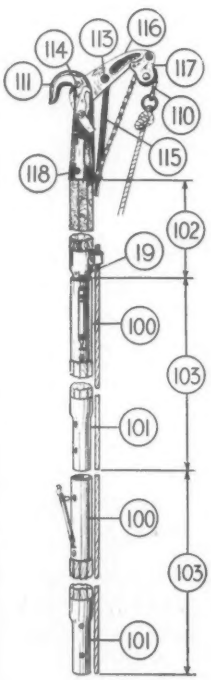

PARTS FOR SEYMOUR-SMITH No. 111 AND 12 POLE PRUNER HEADS NOW AVAILABLE. ALSO FOR H.K. PORTER PRUNERS.

ORDERS FOR BEAN POWER SPRAYERS NOW BEING TAKEN FOR DELIVERY BEFORE NEXT SPRAYING SEASON. PARTS FOR BEAN SPRAYERS IN STOCK.

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Finest Horse-Hide Two Tone leather. Tough and Soft, waterproof gauntlet. Price per pair—$1.95.

FRUIT GROWERS OF CHESTER COUNTY, Inc.

Dept. Tree Surgery Supplies
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Precision
ONE MAN Chain Saw

This is the new Precision Type "I" 20" Bow Saw (patent pending) being used by one man for felling. This machine is now available immediately. **Four other types of Precision Saws are also manufactured using the same motor.** All attachments are interchangeable at small extra cost. Over 5,000 Precision Saws now in operation all using the well known and reliable 3½ H.P. PRECISION Air Cooled 2-Cycle Motor. Full particulars on request.

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Fast, clean holes for **TREE PLANTING**

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- Drills 42" holes to depth of 15 ft.
- 40 times faster than hand methods . . . digs a 6 ft. hole in 3 minutes.
- Clean-cut, uniform holes in any ground workable with hand pick or digging bar.
- Available for truck or trailer mounting.
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PORTABLE ROAD SIGNS
We offer for immediate delivery Automatic Type Tripod Signs. 3 ft. tripod holds 15" x 15" sign, two red flags. 4 ft. tripod has locking cam, 18" x 18" sign, two red flags.
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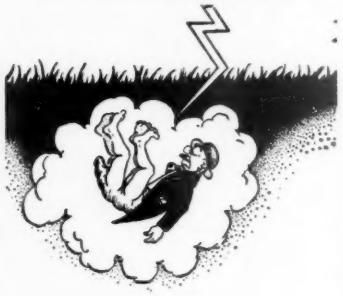
Kill Nematodes



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Safe Soil Disinfectant that Kills Nematodes, Root Aphis, Ground Mealy Bug, Wire Worms and other soil pests.

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For Information Write
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Pasadena 2, California

"I Saw It In TREES"

Tree Report

(Continued from Page 15)

number of older, trained men available. A great deal of this work remains to be completed.

No.	Variety	Diameter	Total Hrs.
23	Maples	22"	213
14	Elms	26"	121
4	Oaks	25"	81
1	Locust	15"	2
1	Ash	26"	16
1	Fir	16"	6
1	Dogwood	3"	1
3	Linden	16"	12

Cabling

The same problem exists here as explained under cavity work with materials an added difficulty. Total trees cabled with an average diameter of 29" were fifteen.

General Maintenance

This item consists of miscellaneous work projects listed below.

Raising low and interfering limbs along highways and cutting back heavy branches overhanging buildings, etc.—Total hours 1019.

Removing broken and dangerous hangers in trees—Total hours 314.

Removing girdling roots — Total hours 30.

Clearing lines, street lights, hydrants, etc.—Total hours 21.

Painting old cavities, scars, large flush cuts—Total hours 24.

Hanging various street banners, etc.—Total hours 92.

Digging out and removing stumps—Total hours 78.

Feeding town street trees — Total hours 314.

Inventory of Town Trees—Total hours 487.

Emergency storm damage — Total hours 14.

Miscellaneous work — Total hours 1017. Grand total 3028.

Tree Planting

Unfortunately, during the past years, very little planting has been accomplished in comparison with the number of trees removed for various reasons. Prevailing conditions during this period prohibited an undertaking of this nature and the great increase in present day purchase price of trees of the size required for street trees and other planting materials such as top soil, fertilizers, etc., necessary in this undertaking determined the postponement of this work until a more settled period. This item of work will be given priority in future plans for this Department.

We Can Save Elms

(Continued from Page 6)

is not necessarily doomed. It may be saved if the treatment begins in the early stage of the infection. In some cases where all diseased wood has been removed, elms have been known to outgrow most of the effects of the disease.

Although this scourge has taken a terrific toll of elms, the situation is not hopeless. In Europe, where the infection first began, there still are elms. In New Jersey, the first area in the United States to be seriously ravaged in 1929, there are still many, many fine elms, thanks to control.

We have just completed a survey of 50,000 elm trees—within a radius of 50 miles from New York City—which have been given complete control treatment—spraying, feeding and sanitation over the past ten years. Less than two per cent of these 50,000 trees died.

This is truly amazing considering the fact that New Jersey, where the disease has been present since 1929, was such a highly infected area, and more than one prognosticator had forecast the doom of all elms there. Much credit must go to the fine work of the Shade Tree Commissions of that State.

This record is even more significant to home owners, to cities, to towns and villages when it is translated into economics.

The cost of giving an elm tree complete control treatment over a period of 15 years may be less than the cost of removing that tree after it has died.

Many elms along streets or on private property have years—perhaps a century of living ahead of them if properly cared for. They are irreplaceable. If permitted to be struck down by the Dutch elm disease, there will be empty space where there was once shade. Property values will dwindle.

Cities as well as home owners are aware, or are becoming aware, of the value and loss of their elm trees. In one New England city hundreds of fine old elms have been stricken by the Dutch elm disease. The cost of removing them has been estimated conservatively at $400,000. Yet a program of $400,000 spent over a period of 15 years in control treatment might have kept most of them alive for decades to come.

Sharp is the contrast of Greenwich, Conn., which has long cherished its highly valued elms. It spends some $20,000 a year on shade tree care. The results have paid Greenwich well. Though it has been in the very heart of the Dutch elm disease area, its loss of elms has been exceedingly small.

Dutch elm disease is like a slow fire. It spreads. Control treatment is both fire prevention and fire apparatus. Firemen bring up their apparatus to quench a slow burning fire. They do not wait until it becomes a conflagration.

If we put up a good fight promptly, the elms will not vanish from the American scene. They can be saved.

2,4-D Tryout Saves 14,000 Corn Acres

Henderson County, Ky., became an unexpected proving ground this year for 2,4-D weeding in corn—and it paid off.

According to the story told by County Agent H. R. Jackson in Agricultural Leaders' Digest, three months of rain by the end of June left corn 10 to 18 inches high—but weeds 6 to 10 inches higher. Paul Rhoades, farmer near Uniontown, rigged up a centrifugal pump, boom and nozzles on his tractor and tried spraying 10 acres of corn with 2-4-D, "with considerable fear and trembling." In a few days 10 or 15 others followed suit.

The situation shook down quickly to a general "kill or cure" tryout throughout the county, since, as Jackson said, "25,000 acres of Henderson County corn was virtually lost from weeds and wet weather." The solution which became locally standardized "cost $10 a gallon, which meant that farmers were killing weeds at a cost of less than 50 cents per acre plus the labor and equipment."

"We found in most cases," Jackson reports, "that we got a root and growth stimulation in the corn instead of injury. Ten days after the application, the development of new feeder roots was twice as great as in untreated check plot rows. At the time of this writing 14,000 acres of Henderson County corn has been sprayed and every acre of it seems to be greatly benefited. What looked to be a miserable corn crop failure has turned out one of the cleanest crops we have had in years. The weeds in the row are all dead. The corn looks splendid; the ears are nice; the set of corn on the cob is very satisfactory.

"The only abnormal condition we can find with the corn is a slight twisting of the brace roots, but up to date no one can call this an injury."

H. E. MUENCH

Since 1931 . . . Manufacturers of

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Hardie Sprayers, Power Tools, Hand Tools, Cable, Paints, Spray Materials, including the latest Synthetic Insecticides and Fungicides for Sprayers and Mist Blowers,

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The BUTTS TREE MOVER

Dependable *Safe* *Simple*

The tree mover, on a swivel, that you saw at the National Shade Tree Conference in Cleveland, is now available for Fall delivery. Assure yourself of a profitable tree moving season by ordering now.

The J. G. Butts Co., Cato, N. Y.

"I Saw It In TREES"

Forester vs. Arborist

(Continued from Page 9)

types of spray materials or their proper use in pest control. It is something one cannot "pick up" by mere observation. The knowledge acquired by treemen through experience is necessary before one knows what solution and concentration is required for the control of the multitudinous insects and diseases found on shade trees with foliage of varying susceptibility to chemical injury.

The arborist or tree expert uses a special tree food to promote healthy growth in trees, whereas the forester must rely entirely on the disintegration of the accumulated leaf litter and debris in the forest to supply nitrogen and mineral salts. The forester is taught nothing about the effect of different fertilizers on the growth of trees. He can seldom diagnose fertilizer trouble or deficiency of soil elements.

In the forest we have natural pruning due to the close growth of the trees. Foresters practice artificial pruning to a very limited extent. The arborist on the other hand practices not only intensive pruning but also thins out and shapes up the crown of a tree for aesthetic effect. something the forester pays little attention to. This is not as easy as it might seem. There are many sad examples of improperly pruned shade and fruit trees along our highways to substantiate this statement.

To some foresters the term "tree surgery" denotes the trademark of the arborist. While cavity work comprises only 3 to 5 per cent of the business of the arborist, when and where to use it is of great importance. It is a matter of judgment based on previous experience. The writer has never known a forester who ventured to pass an opinion on this type of shade tree work. It is an art which requires a mechanical skill of the highest technique. To determine the type of cavity fillers that may be used in tree surgery has cost the commercial companies much expense and experimentation. This information cannot "be taught to a forester in a short time." And please let the forester experiment on his *own* trees first. It will require all his knowledge about tree growth, texture of wood, decay of wood, to say nothing of chemicals injurious to cambium cells.

Where is the forester just out of school who can tell a client just where to place a steel cable to re-inforce a structurally weak tree against storm damage. Each tree is a problem in itself. There is no hard and fast rule. Yet, an improperly placed steel cable in a shade tree would quickly label the person as an amateur.

At present there are thousands of valuable trees protected against damage by lightning by systems which have been installed by the arborists. Where does a forester learn about this in school? His first contact with lightning protection is usually in the fire tower on a national forest, where the installation has been made by a specialist in this type of work.

And now with chemotherapy in the tool-kit of the arborist we wonder how the forester just out of college would handle that.

There recently died a man known among the literati and scribes as the "Hobo Author," who in his younger days worked winters as a chainmaker and summers as a tree surgeon. Perhaps that's where some foresters got the impression that arboriculture is a seasonal occupation. Far from it. The well-organized tree companies today have work for their men the year around. This has had the effect of bringing a high class of technician into the profession.

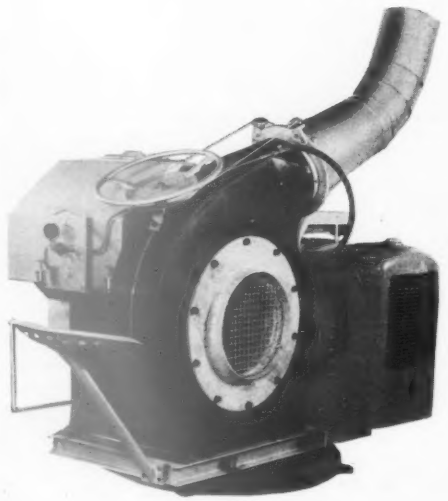
There is some truth in the statement that some men of limited schooling are making a good living out of the shade tree business. These are the men who

(Continued on Page 22)

The LAWRENCE AERO-MIST SPRAYER

A 3-WAY INVESTMENT

FOR INSECT PEST CONTROL



Here's the new revolutionary mist sprayer that can be used by TREE, PARK and HEALTH departments for protection against defoliators, obnoxious pests and disease carrying insects. One machine for all 3 departments. Fast . . . efficient . . . economical . . . field-tested, the Lawrence Aero-Mist Sprayer projects insecticides to extreme distances in the form of a fine mist. All spray particles work in eliminating pests. Maximum pest protection at a minimum cost assured. **Write today for further details, prices, and free Bulletin No. 1.**

SHARE THE USE 3 WAYS — SHARE THE COST 3 WAYS

TREE DEPARTMENTS
Lawrence Aero-Mist Sprayer for the protection of shade trees and shrubs from defoliators and tree diseases.

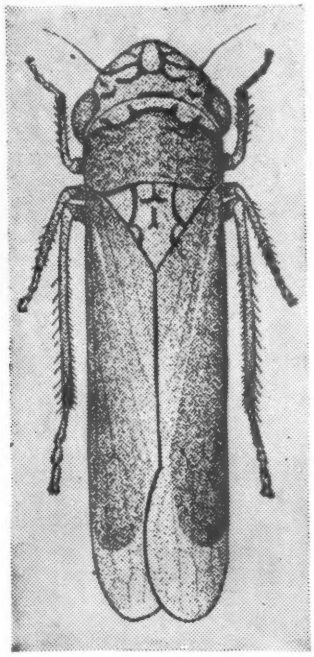
PARK DEPARTMENTS
Lawrence Aero-Mist Sprayer for the elimination of obnoxious pests at beaches, ball parks, picnic grounds, playgrounds and public parks.

HEALTH DEPARTMENTS
Lawrence Aero-Mist Sprayer for the protection of community health from dangerous disease-carrying insects.

THE LAWRENCE AERO-MIST SPRAYER COMPANY
58 Federal St., Greenfield, Mass.

The Rain Tree

(Continued from Page 8)



Rain-maker?

referred to as a "sharp-shooter." This particular species is probably known scientifically as *Oncometopia undata.* (F). According to Dr. D. E. Parker, Agricultural Research Center, Beltsville, Md., there are no records of this species occurring abundantly on linden. An explanation of the situation might be that the more succulent vegetation in the vicinity became unpalatable, due perhaps to the extended dry weather which had obtained for a period of a full month, and the population moved to the linden. The species is normally found on composits.

The insects occurred in such large numbers as to render their combined exudations almost rain-like. It is said that a heavy infestation may produce a rainbow-like effect if viewed from the proper orientation. They are perhaps more common in the far West and South than along the Atlantic Seaboard. They are quick to fly when disturbed; are logy fliers, but the rapid beating of their grayish wings causes them to appear more like a large particle of lint being blown by the wind than an insect.

A local tree man and member of The National Shade Tree Conference, Mr. George Stover, apparently solved the problem before the expedition recorded here was undertaken, but he too was misled at first. It is questionable whether the supernatural aspect had anything to do with any of the methods of procedure or the conclusions. It is fairly clear that a tree climber is a necessary piece of equipment when any comprehensive diagnosis is attempted. And as Dr. May stated on our way to a much needed lunch, "all the papers and hints on the proper procedure to follow in successful diagnosis seem to lack something. That is because most cases differ in some slight but important respect."

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Xmas Trees

(Continued from Page 5)

FORMULA II

(Produces a cream-colored coating. May be tinted with suitable dyes.)

Ingredient	*Parts by Weight*
Sodium silicate (water glass)	31
China clay	41
Water, containing wetting agent (about 1 teaspoon per quart)	28

FORMULA III

(Produces a glossy white coating. May be tinted with suitable dyes.)

Ingredient	*Parts by Weight*
White lead (basic carbonate)	41.0
Borax	32.0
Raw linseed oil	22.8
Turpentine	3.6
Japan drier	.6

This type of coating can be made at home by mixing equal parts of a commercial white lead paint and of a borax-linseed oil paste. The paste is prepared by stirring together one part by weight of boiled linseed oil and 2 parts of borax ground and sieved to remove coarse lumps.

In applying any of the foregoing coatings the fact must be kept in mind that a heavy coating is necessary to reduce the fire hazard. Two coats are recommended. The coatings may be applied either by dipping or by spray. It may be necessary to thin formula I for spray application in which event more applications are necessary.

Silver effects can be had by spraying an aluminum paint on trees coated with either formula II or III.

If a coating is applied, it is recommended that the water treatment also be used to insure the added protection against fire that the moisture in the tree provides. Furthermore, experiments have shown that the water treatment improves the adherence of brittle coatings, such as formulas I and II, because the moisture-filled needles do not shrink and thus allow brittle coatings to flake off.

Fire-Retardant Chemical Solutions

Experiments at the Forest Products Laboratory have shown that the introduction of several fire-retarding chemicals into spruce resulted in one or more of the following: needle discoloration, needle fall, increased combustibility. The increase in flammability was due to the fact that chemical solutions were taken up by the tree neither so rapidly nor in such large amounts as water and trees actually lost weight while being treated with chemical solutions. Thus, while the trees were taking up some fire-retardant chemical, they were losing another excellent fire retardant, water.

As a specific example, ammonium sulfate caused serious discoloration of both spruce and balsam fir needles. Spruce needles started to fall 2 days after treatment and by 5 days were falling freely. (Reports that have come to the Forest Products Laboratory from those who have used the ammonium sulfate treatment have revealed similar experiences). Both spruce and balsam fir treated with ammonium sulfate were more flammable than water-treated specimens. The spruce was more flammable than the balsam.

Although the experiments with materials of known fire retarding possibilities failed to disclose a chemical superior to water, they do not prove that such treatment is impossible. Until some other treatment is proven to be substantially superior, water or the combination of water and coating, if used under the conditions here recommended, will serve well.

Extra Fire Precautions

In addition to these treatments, all possible precautions against fire should be in effect around the Christmas tree, including the elimination of defective electrical connections, and avoidance of the accumulation of combustible decorations on or beneath the tree.

Forester vs. Arborist

(Continued from Page 20)

spray trees they do not recognize, with a chemical solution the effect of which on the foliage they do not suspect, and for insects and diseases about which they are ignorant.

Do the forestry schools wish to swell the ranks of this type of "tree expert"? Let them first equip and staff themselves to give adequate training in arboriculture. Then the graduate may come out "swinging" with the fundamental training of the professional arborist or tree expert.

Wood Collectors Society

Under the leadership of several highly enthusiastic wood collectors, wood technologists and botanists a Wood Collectors Society has been formed.

The purpose of the organization is to enable the members to assist each other in the collection of wood specimens from all over the world, to standardize procedures, avoid duplication of effort and to cooperate with institutions in augmenting their collection of herbarium material and wood specimens and to receive aid in the proper naming of specimens.

Although the Society does not lay claims to highly scientific motives, botanically identified woods with scientific as well as common names and places of origin are desired.

The president of the new organization is W. F. Opdyke, 14668 Superior Road, Cleveland Heights 18, Ohio. The vice president is Henry J. Dentzman, Room 1112, 1218 Olive St., St. Louis 3, Missouri and the secretary-treasurer is C. D. Gilbert, 2412 South Boulevard, Houston 6, Texas.

Anyone having access to uncommon or unusual woods, ½x3x6" or larger, that could be made available to members of the Society or anyone wishing to join the Society should get in touch with any of the officers.

Arthur Koehler,
U. S. Forest Products Laboratory,
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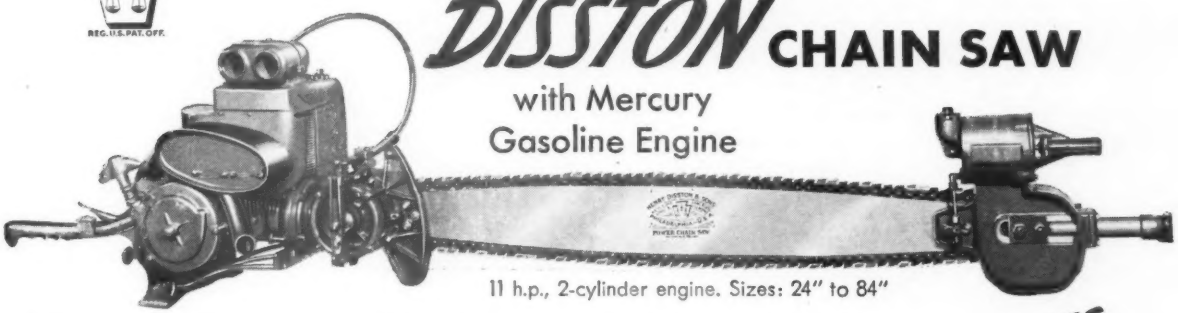

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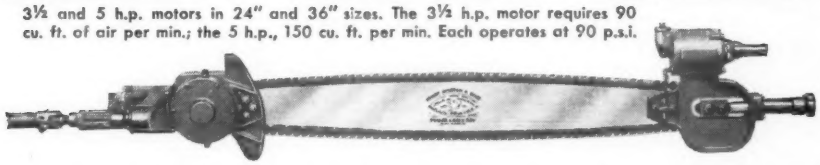

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At this Christmas time, may our season's message extend to you not only our sincere Christmas greetings, but our well wishes for a prosperous and constructive coming year. We invite you all to call upon us, to visit our Research Laboratories and Experimental Grounds, and to share in what small contribution we may be fortunate enough to add to the store of knowledge that all of us strive to accumulate for the benefit of all in the better care of shade trees.

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